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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/566,852

02/22/2006

Hiromi Yoshida

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IP GROUP OF DLA PIPER LLP (US)  
ONE LIBERTY PLACE  
1650 MARKET ST, SUITE 4900  
PHILADELPHIA, PA 19103

EXAMINER

YEE, DEBORAH

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/566,852	<b>Applicant(s)</b> YOSHIDA ET AL.	
	<b>Examiner</b> Deborah Yee	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11 to 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese patent 2002-26941("JP-941") for the reasons set forth in the previous office actions.

3. JP-041 teaches high strength steel sheet examples F, I, K and O in tables 1 and 2 having a composition and microstructure that meet the recited claims except contain V within the range of 0.01 to 0.5%V; and when calculated, satisfy the claimed Nb and Ti equation. In addition, specific steel examples are processed in the same manner as claimed by Applicants to obtain tensile strength  $\geq 440$  MPa and  $r \geq 1.2$ , and exhibit a microstructure of ferrite phase  $\geq 50\%$  and martensite phase  $\geq 1\%$ . See paragraphs [0043] to [0056] and Table 2 wherein steel is subjected to hot rolling with a finishing temperature  $900^{\circ}\text{C}$ , coiling at  $650^{\circ}\text{C}$ , cold rolling, annealing between  $800\text{-}950^{\circ}\text{C}$ , and cooling at  $\geq 5^{\circ}\text{C/sec}$ . followed by plating steel surface.

4. JP-041 differs from present invention because it is directed to a steel containing 0.01 to 0.5% V whereas inventive steel is V-free. It would, however, be obvious for one to omit V, as Applicants has done, when the consequent loss of its known function, drawability, is not needed.

***Response to Arguments***

5. Applicant's arguments filed April 22, 2009 have been fully considered but they are not persuasive.

6. Applicant argued that one skilled in the art would not be motivated to omit V which is known to provide good drawability and a high r-value in JP-041 steel because such a modification would change a fundamental principle of operation of the reference. JP-941 teaches inclusion of V results in drawability properties which are an important feature of the invention and cannot be fully replicated by substituting V with Nb and Ti. Moreover, even if one skilled in the art was motivated to omit V, there is no reasonable expectation of successfully achieving V-free steel with good drawability or an r-value of more than 1.2 since JP-941 expressly teaches that Nb and Ti cannot fully improve deep drawability without also including V.

7. In response to argument, examiner maintains her position that it would be obvious for one skilled in the art to omit vanadium and its known function (drawability) when the known function of vanadium (drawability) is not needed. According to JP-041, paragraph [0031] discloses Nb and Ti are carbide-forming elements like V and have the same role as V, namely carrying out deposit immobilization by using dissolution C as Nb and Ti carbides before recrystallization such that [111] recrystallization texture is developed and a high r value can be obtained. The effect Nb and Ti, however, cannot fully improve deep drawability without V to achieve high r values such as 1.7 to 1.9. This teaching appears to replicate Applicant's invention, wherein Nb and Ti are added and V is omitted such that steel produces no more than the known and expected effect from

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such a modification which is lower drawability with r value at 1.2 as recited by Applicant's claims. In any event, it would be a matter of choice well within the skill of the artisan to omit V when higher degree of drawability is not required depending on its application.

8. Applicant argued that present invention steel is not merely a predictably inferior product of JP-941 as asserted by examiner but rather steel that exhibits unexpected results by maintaining a high r-value of 1.2 despite being free of V. It was further submitted that JP-941 teaches away from the present invention because it relies on V and not Nb and Ti to achieve high drawability. This is evident base on examples disclosed in Table 1 of JP-941. Applicant compares steels A and G whereby like steel G, steel A contains V and lacks both Nb and Ti. Steel G has only one third of the amount of V as steel A and has an r-value of only 0.8 as compared to steel A's r-value of 1.2. One skilled in the art would be led to conclude that the difference in r-value of Steel G and Steel A is due to the lower amount of V in steel G. When comparing prior art steels C and F, they both contain V, Nb, and Ti, but have the same r-value as Steel A which contains V. This would lead one skilled in the art to believe that Nb and Ti do not significantly contribute to increasing the r-value. Taken together, the properties of the examples in JP-941 suggest to one skilled in the art that steel that is entirely free of V, regardless of whether it has Nb and Ti, would have an r-value that is as low or lower than the r-value of 0.8 yielded by steel G.

9. It is the examiner's position that steel F is an invalid comparison because microstructure comprising 0% martensite is not representative of either the present

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invention or JP-941. Moreover, steel C contains 0.085%V-0.035%Nb-0.035%Ti and has the same r-value of 1.8 as steel A which contains 0.132% V. Despite that fact that Steel F has 0.085% V which is lower than 0.132% V of Steel A, it still has the same r-value as Steel A because the addition of Ti and Nb contributed in raising the r-value. Therefore one skilled in the art can conclude that Ti and Nb do contribute to increasing r-value. In any event, Applicant has not demonstrated that the omission of V with the retention of the V's function in present invention steel is achieved. Hence indicia of unobviousness have not been established.

### ***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on monday-friday 6:00 am-2:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Deborah Yee/  
Primary Examiner  
Art Unit 1793

/DY/